Software Quality Engineering

Software Quality Engineering
A Practitioner's Approach

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For my daughter, Gabrielle

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Preface

When in the early 1980s I began my adventure with information technology, I was enthusiastic, full of ideas, and profoundly naïve. I remember one of my older colleagues at the university saying, "With the microprocessor technology you just dream out what you want to do, and it will be done so." Since then I have gone through years of using the evolving information technology and every now and then I have had to stop everything I was doing to rescue it. Quite a few times I have lost hours of work, accumulated research data, and patience. . . .

Then I began asking myself the question, "Why is all that happening?" The technology is better and better, machines are more and more powerful, yet still I don't feel comfortable with keeping my important work in one place and format only. What is missing here?

About twelve years ago I found the answer: the vision for quality of information technology and systems may be there, but it is often not engineered into the products we use.

That was the moment when the idea of this book was born. The purpose of this book is to give a concise, engineering-oriented, and practical support to IT professionals and to those who are responsible for quality of the software or system they develop; those who negotiate new systems to be developed, delivered, and installed; those who will operate and use them; and those who will maintain them. The book is also intended to serve in academia as a manual to lectures that address the subject of software or system quality.

Software and system quality engineering is discussed in this book from four different perspectives: why it is important (Chapter 1), how to make it happen (Chapter 2), application contexts (Chapter 3), and what could be done to increase trust in contemporary software and systems (Chapter 4). Every chapter offers both a layer of theoretical introduction required to correctly grasp its content and a practical part that offers hands-on recommendations.

The effective use of this book depends on the reader's level of familiarity with the subject of software and systems quality. For the readers who possess practical knowledge of software and systems quality-related standards (ISO, IEEE), a considerable part of theoretical introduction may be deemed unnecessary. For the beginners or those who want to reorient their practices toward disciplined, standards-based approaches to engineering quality into software or a system, following the path of theory to practice is recommended. Finally, the practitioners who feel very comfortable with quality engineering matter may even go directly to Chapter 2, as it offers a lot of support in terms of practical identification, definition, and execution of engineering "to-dos" required in the process of developing a system or software that possesses both functionalities *and* quality.

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